(d) If your test engine has a major mechanical failure that requires you to take it apart, you may no longer use it as a test engine.

§ 1065.415 Durability demonstration.

If the standard-setting part requires durability testing, you must accumulate service in a way that represents how you expect the engine to operate in use. You may accumulate service hours using an accelerated schedule, such as through continuous operation.

(a) *Maintenance.* The following limits apply to the maintenance that we allow you to do on test engine:

(1) You may perform scheduled maintenance that you recommend to operators, but only if it is consistent with the standard-setting part's restrictions.

(2) You may perform additional maintenance only if we approve it in advance, as specified in § 1065.410(b).

(3) If your test engine has a major mechanical failure that requires you to take it apart, you may no longer use it as a test engine.

(b) *Emission measurements.* You must measure emissions following two main requirements:

(1) Perform emission tests to determine deterioration factors consistent with good engineering judgment. Evenly space any tests between the first and last test points throughout the durability period.

(2) Perform emission tests following the provisions of this part and the standard-setting part.

Subpart F—Running an Emission Test

§ 1065.501 Overview of the engine dynamometer test procedures.

(a) The engine dynamometer test procedure measures brake-specific emissions of hydrocarbons (total and nonmethane, as applicable), carbon monoxide, and oxides of nitrogen. To perform this test procedure, you first dilute exhaust emissions with ambient air and collect a continuous proportional sample for analysis, then analyze the composite samples (either in bags after the test or continuously during the test). The general test procedure consists of a test cycle made of one or more segments (check the standard-setting part for specific cycles):

(1) Either a cold-start cycle (where you measure emissions) or a warm-up cycle (where you do not measure emissions).

(2) A hot-start transient test (some test cycles may omit engine starting from the "hot-start" cycle).

(3) A steady-state test.

(b) Measure power using the dynamometer's feedback signals for torque and speed. The power measurement produces a brake kilowatt-hour value that allows you to calculate brake-specific emissions (see Subpart G of this part).

(c) Prepare engines for testing consistent with § 1065.10(c)(1) and according to the following provisions:

(1) When you test an engine or operate it for service accumulation, use the complete engine with all emission-control devices installed and functioning.

(2) Install the fan for any air-cooled engine (if applicable).

(3) You may install accessories such as an oil cooler, alternators, and air compressors or simulate their loading if they are typical of in-use operation. Apply this loading during all testing operations, including mapping.

(4) You may install a production-type starter on the engine.

(5) Cool the engine in a way that will maintain its operating temperatures including the intake air, oil, water temperatures about the same as they would be during normal operation. You may use auxiliary fans if necessary. You may use rust inhibitors and lubrication additives, up to the levels that the additive manufacturer recommends. You may also use antifreeze mixtures and other coolants typical of those approved for use by the manufacturer.

(6) Use representative exhaust and air-intake systems. Make sure the exhaust restriction is 80 to 100 percent of the recommended maximum specified exhaust restriction and the air inlet restriction is between that of a clean filter and the maximum restriction specification. As the manufacturer, you are liable for emission compliance from the minimum in-use restrictions to the